

The Type of Student You Were in High School Predicts Voter Turnout in Adulthood

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Objective. Research on political socialization has shown that political and civic experiences during high school can impact later political engagement. However, political scientists are increasingly realizing that nonpolitical experiences, dispositions, and attributes in childhood and adolescence can play a role in shaping political participation. Building on recent studies in developmental psychology, we examine whether and how student characteristics and behaviors in adolescence are related to political engagement in adulthood. *Methods.* Using data from the Project Talent study, a national longitudinal study of a representative sample of high school students in the United States, we find that several behaviors and attributes related to one's high school experience have long-term effects on voter turnout. *Results.* Responsible students and those with high levels of interest in school are more likely than their counterparts to vote when they reach adulthood. *Conclusion.* The effects of the school-related measures we examine (1) persist for more than a decade after high school ends, (2) are similar in magnitude to the effects of classic predictors of political engagement such as parental political activism, and (3) hold even in the presence of controls for general personality traits, cognitive ability, resources such as parental socioeconomic status, socialization experiences, and demographic variables. Our results have implications for how to increase political participation.

Political scientists have long been interested in the underpinnings of political participation. A great deal of research in the area of political socialization has focused on the role of preadult attributes and experiences in shaping political engagement. Political socialization scholars have, for obvious reasons, focused heavily on the long-term effects of *political* experiences and attributes such as talking politics with one's family or the civic climate at one's school (Jennings, Stoker, and Bowers, 2009; Campbell, 2006; Jennings and Niemi, 1981; Niemi and Jennings, 1991; Andolina et al., 2003). However, political scientists are increasingly realizing that preadult experiences and attributes that are *nonpolitical* in nature can have important effects on political engagement (Condon, 2015; Gidengil et al., 2019; Dinesen et al., 2016; Holbein, 2017; Settle, Bond, and Levitt, 2011; Hillygus, 2005). For example, Holbein (2017) finds that childhood psychosocial skills have long-term effects on political participation. Hillygus, Holbein, and Snell (2016) show that a measure of grit, which captures tenacity or perseverance, collected in adolescence has a strong effect on voter turnout in adulthood. Additionally, scholars have found that broad personality measures predict individual political engagement (Mondak, 2010; Mondak et al., 2010; Gerber et al., 2011; Dawes et al., 2014; Denny and Doyle, 2008).¹ In some studies, personality traits predict political engagement even when they are measured over 20 years earlier

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¹A related body of research has explored the genetic underpinnings of political participation (see, e.g., Fowler, Baker and Dawes, 2008; Dawes et al., 2014; Klemmensen et al., 2012).

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(see, e.g., Denny and Doyle, 2008).² Studies like these align well with recent research in psychology showing that attributes that are present and experiences that occur early on in one's life often have long-lasting effects on important life outcomes such as wealth, health, occupational success, and educational attainment (Moffitt et al., 2011; Spengler, Damian, and Roberts, 2018; Spengler et al., 2015; Daly et al., 2015).

In this article, we are interested in how general behaviors and attributes related to high school influence political participation later in life. Although socialization research has convincingly demonstrated that political experiences within one's high school, such as learning in an encouraging civic climate or participating in student government, can positively impact later political engagement (Brady, Verba, and Schlozman, 1995; Niemi and Junn, 2005; Campbell, 2006; Andolina et al., 2003; Galston, 2001), much less work has focused on the role of nonpolitical experiences and attributes in high school. Building on a number of recent studies in developmental psychology, we examine whether and how student characteristics and behaviors in adolescence are related to political engagement in adulthood.

As a brief overview of our approach, we use a novel study called Project Talent. Project Talent is a national longitudinal study that was developed by the American Institutes for Research and, at the time, was the largest and most comprehensive study of high school students in the United States. The first wave of this survey took place in 1960 when a representative sample of U.S. high school students was assessed.³ Initially, over 440,000 students in Grades 9–12 participated. After the initial testing, participants were recontacted one, five, and 11 years after the original survey. Thus, because we have data on the same individuals over time, this data set enables us to examine whether behaviors and attributes related to school have effects as people progress throughout life. Importantly, the study also includes measures that are typically predictors of political engagement, such as demographic attributes, parental socioeconomic status, parental political activism, cognitive ability, and personality traits, allowing us to see if high school behaviors are related to political participation above and beyond other important determinants identified in the literature.

Background and Theoretical Expectations

Studies on political socialization have shed a great deal of light on the role of the family and schools in shaping political behaviors and attitudes (see, e.g., Jennings, Stoker, and Bowers, 2009; Niemi and Jennings, 1991; Jennings and Niemi, 1981; Brady, Verba, and Schlozman, 1995). Since the high school years are an important period of development, many studies have focused on experiences or attributes that are present (or absent) in high school. For example, much has been written about the role of civics classes, service learning, school curriculum, and political events in fostering (or hampering) civic engagement (Campbell, Levinson, and Hess, 2012; Campbell, 2006; Niemi and Junn, 2005; Jennings, 2002; Hillygus, 2005). Although studies show that civic and political experiences during high school can influence later attitudes and behaviors, it is also possible that orientations, behaviors, and experiences that are *not explicitly political in nature*, but that might be *relevant or helpful* to political life, have long-term effects on political behavior. A perfect illustration of this comes from the recent work of Hillygus, Holbein, and Snell (2016), who show that

²See Block and Block (2006) for an example of how early personality measures are related to political ideology in adulthood.

³Roughly 5 percent of American high school students at the time participated in the study.

people with high levels of grit in adolescence are more likely than their counterparts to vote when they reach adulthood. Grit is not a political trait, but it is politically relevant because “gritty” individuals tend to be willing to persevere when challenges emerge and there are numerous obstacles that can get in the way of voting (e.g., long lines) and may need to be overcome. In a similar vein, Settle, Bond, and Levitt (2011) show that social integration in high school affects political engagement in adulthood. Again, social integration is not a political measure, but social integration in adolescence seems to create an environment conducive to the development of social norms that foster engagement later on in life. Finally, Hillygus (2005) finds that verbal SAT scores in high school are related to future political engagement. While SAT scores do not measure political content, they do capture language skills that are important to political life.

Recent work in developmental psychology and economics has illustrated that some dispositions, attributes, and behaviors during high school have effects on outcomes as significant as occupational success, educational attainment, and income (Stoll et al., 2016; Spengler, Damian, and Roberts, 2018; Spengler et al., 2015, 2016a, 2016b; Daly et al., 2015; Heckman, Stixrud, and Urzua, 2006; Heckman and Vytlačil, 2001). For example, Spengler, Damian, and Roberts (2018) find that students who show more of an interest in school have higher levels of educational attainment, occupational prestige, and income in adulthood. This holds even after accounting for socioeconomic status, cognitive ability, and personality traits. In some cases, the effects are present even 50 years after the completion of high school. Additionally, Spengler, Damian, and Roberts (2018) find that being a responsible student is positively related to educational attainment and occupational prestige in adulthood. We are interested in building on existing research on the role of student behaviors and attributes in predicting life success. More specifically, we want to explore whether the positive effects of nonpolitical behaviors and characteristics present during high school extend to the political domain. In this article, our focus is on voter turnout, one of the most important and basic political acts in a democracy.

We focus on variables identified by Spengler, Damian, and Roberts (2018) and Spengler et al. (2015) that have been shown to influence life success—being a responsible student and showing an interest in school. Just to be clear, our perspective is not that these are the only school-related variables that may be relevant to political engagement. However, since these factors have been measured in previous studies and linked to life outcomes in adulthood, they serve as a useful starting point for investigating the impact of nonpolitical attributes and behaviors on political engagement in adulthood. We expect that each of these variables will be positively related to voter turnout. Next, we provide an overview of our theoretical expectations.

School is an important social institution that students interact with early on in life and individuals develop varying feelings of responsibility as students (Spengler, Damian, and Roberts, 2018; Spengler et al., 2015). While some students feel a strong sense of obligation to follow school norms (e.g., turning assignments in on time, being on time to class, etc.) and take responsibility for their own learning, others do not have those same feelings. Interestingly, in an early study in psychology, Gough, McClosky, and Meehl noted that “On theoretical grounds, responsibility should be one of the factors . . . underlying political participation” (1952:79). Studying Minnesota high school and college students in the 1950s, they observed that “the most responsible students would appear to be persons with a deep concern over broader ethical and moral problems, with a strong sense of justice, with a rather high, but somewhat rigid, set of self-demands and standards, a rejection of privilege or favoritism, an in-ability to enjoy ‘unearned’ rewards, an almost excessive emphasis on carrying one’s own share of burdens and duties, a strong and unflagging sense

of confidence in self and in the basic rightfulness of the larger social world . . .” (Gough, McClosky, and Meehl, 1952:77). While many studies in political science have shown that people who feel a strong sense of civic duty are much more likely to participate in politics than their counterparts (Blais, 2000; Blais and Labbé-St-Vincent, 2011), one possibility is that a general sense of responsibility actually underpins more specific feelings of obligation (e.g., responsibility to vote or to attend jury duty). This is what early research on the “socially responsible” disposition seemed to hint at (Berkowitz and Lutterman, 1968; Gough, McClosky, and Meehl, 1952). In fact, Berkowitz and Lutterman describe “high responsibles” in this way: “He sticks to the duties given to him even though temptations might come along; he is strongly opposed to letting his friends down, and strongly in favor of working for the good of the team rather than for his own good; *he insists people should vote*, participate in community activities, and not cheat on their income taxes” (1968:171). We expect that the sense of responsibility that some individuals develop about their role as students in school will also extend to other institutions in society, including political institutions. Students who express high levels of responsibility should be more inclined to vote than their counterparts.

We also expect that interest in school will be positively related to voter turnout. Students who have a genuine interest in their school work likely do so because they enjoy the kinds of things that school entails, such as analyzing information, questioning, discovery, critical thinking, and problem solving. These types of activities have obvious relevance to political life (e.g., learning about candidates and issues, discussing, and debating, etc.). Being interested in school might also be a domain-specific expression of more basic personality dispositions. Indeed, Kandler et al. note that interest may be “dispositional beyond the Big Five [personality traits] and cognitive . . . abilities” (2011:1640).⁴ Thus, early measures of interest in school may capture general predispositions to be interested in or curious about a wide range of different things. The high level of interest that some students show toward their school work should translate into interest and engagement in political life.

Before proceeding, we note that although these variables may be correlated with some personality and cognitive traits (e.g., cognitive ability), we believe that student responsibility and interest in school will be related to political engagement independent of broader constructs like personality traits (Spengler, Damian, and Roberts, 2018). Because the Project Talent study included a personality measurement battery, we are able to include general personality measures in our empirical models as controls. In short, we can test whether more specific measures related to school are important *above and beyond* personality measures and other important determinants of political participation.

Data

The data set we use in this article is the Project Talent study. Project Talent is a national longitudinal study developed by the American Institutes for Research, a nonprofit, nonpartisan research institute funded by the U.S. Office of Education. The first wave of this survey took place in 1960 when a representative sample of U.S. high school students was assessed. At the time, this was the largest and most comprehensive study of high school students ever conducted in the United States. Initially, about 440,000 students (in Grades 9–12) from 1,353 schools across the country participated in two full days or four half-days of testing.

⁴In fact, Kandler et al. report that there is evidence of “a genetic foundation for most of the scales of vocational and leisure-time interests” they study (2011:1639).

Students completed an extensive battery of tests and questions that examined competencies in different subjects. In addition, students were asked to complete questionnaires about family background, personal and educational experiences, aspirations for future education and vocation, and interests in various occupations and activities.

Each grade cohort (9th-, 10th-, 11th-, and 12th-grade classes) from the base year sample was contacted and asked to complete mail surveys at one, five, and 11 years after their graduation. Although the primary focus of the Project Talent study was not to examine political behavior, as part of the five- and 11-year follow-up studies, some of the cohorts were asked questions about political engagement.⁵ More specifically, in the five-year follow-up survey, respondents were asked about voting in national, state, or local elections. Although each of the four grade cohorts were surveyed during the five-year follow-up, Project Talent only asked the voting question in the survey of students who were originally in the 10th-grade class cohort. The response rate for this cohort was 31.8 percent. Although there is always concern about attrition when conducting panel studies, the Project Talent study has a unique feature that helps reduce concerns over attrition. Indeed, “to counter bias introduced by non-response and unsuccessful tracking efforts, in each wave special samples were drawn from the pool of non-respondents and received extensive locating and follow-up measures through a telephone interview or an in-person interview . . . Non-respondents were selected systematically by region, state, city, and school and, in most cases, by classroom to reduce the sampling error for related variables” (Prescott et al., 2012:439). For the five-year follow-up of the 10th-grade cohort, 78.6 percent of those who initially did not respond were located and completed the survey.⁶

In addition to the vote question described above, in the 11-year follow-up survey respondents were asked about their participation in presidential elections. Again, each grade cohort was surveyed after 11 years, but Project Talent only asked the vote questions of students who were originally in the 12th-grade class cohort. The response rate for this cohort was 27.9 percent.⁷ Overall, we have several measures of political engagement that were collected *after* the students left high school. This allows us to examine if measures of attributes and behaviors during high school have long-term effects on political participation in adulthood. It is important to note that although Project Talent originally studied over 400,000 students, because the political questions were only asked of a certain subsamples we do not have the full sample of 440,000 individuals in our analyses. Even so, all of our analyses are based on fairly large numbers of people (between 13,000 and 22,000 respondents).

Measures

Dependent Variables

Project Talent included a few questions about political participation in the follow-up surveys. In the five-year follow-up survey to those in the original 10th-grade class, respondents were asked: “Have you ever voted in a national, state, or local election?” We

⁵The primary focus is to examine health and well-being as people age.

⁶The number of nonrespondents pursued to take the survey was 2,001.

⁷Once again, in each wave special samples were drawn from the pool of nonrespondents and received extensive locating and follow-up measures through a telephone interview or an in-person interview. For the 11-year follow-up of those who were initially nonrespondents in the 12th-grade cohort, the response rate was 77.2 percent. For this cohort, the number of nonrespondents pursued to take the survey was 3,105.

TABLE 1
Behaviors and Attributes in High School (Measured in 1960)

| |
|---|
| Interest in school, $\alpha = 0.80$ |
| I have missed assignments or other important things that the teacher has said because I was not paying attention (r). |
| Failure to pay attention in class has caused my marks to be lowered (r). |
| I get behind my school assignments (r). |
| In class I can't seem to keep my mind on what the teacher is saying (r). |
| I do my assignments so quickly that I don't do my best work (r). |
| My teachers have criticized me for turning in sloppy assignments (r). |
| Unless I really like a course, I do only enough to get by (r). |
| Lack of interest in my schoolwork makes it difficult for me to keep my attention on what I am doing (r). |
| I feel that I am taking courses that will not help me much in an occupation after I leave school (r). |
| Responsible student, $\alpha = 0.64$ |
| I consider a very difficult assignment a challenge to my abilities. |
| I do a little more than the course requires. |
| My grades reflect my ability fairly accurately. |
| When studying for test, I am able to pick out important points to learn. |
| I keep up to date on my assignments by doing my work every day. |
| I make sure that I understand what I am to do before I start an assignments. |
| (r) indicates that the item is reverse coded. |

coded yes responses as 1 and no responses as 0. Additionally, we have access to a few measures that are even more distant from the high school years. In the 11-year follow-up survey to the original 12th-grade class, respondents were asked two questions about voting. The first question asked: "Did you vote in the last presidential election (November 1968)?" Immediately following that question, respondents were asked: "Did you vote in the last primary election?" For both questions, we coded yes responses as 1 and no responses as 0. While we cannot correlate the five-year turnout measure with the 11-year measures (since they were asked of different subsamples), we can correlate the two vote questions asked in the 11-year follow-up survey. Comfortingly, the measures are highly correlated at $r = 0.53$ ($p < 0.001$). Since all of our measures of turnout are dichotomous, we use logistic regression models.

Key Independent Variables

In order to measure student responsibility and interest in school, we follow the lead of Spengler, Damian, and Roberts (2018) and use items included in the Student Information Blank section of the Project Talent study. In the initial study, students answered a set of items concerning their feelings, thoughts, habits, and skills with regard to their school lives. Overall, students answered a number of items related to school behaviors and attributes, each of which was recorded on a five-point scale ranging from "almost always" to "almost never." Table 1 provides an overview of the items used to construct each of the scales, which we created by summing the items and then dividing the resulting variable by its maximum

possible value (so that each scale theoretically ranges from 0 to 1). Table 1 also includes the reliability scores for each of the scales, both of which have acceptable reliability coefficients.

Control Variables

In order to examine the influence of the four scales described above on voter turnout, we need to demonstrate that the high school measures are not simply proxies for other factors that have been shown to influence turnout such as cognitive ability, personality traits, resources, and socialization experiences, and might also be related to high school attributes and behaviors. Thus, we include control variables that measure cognitive ability, parental socioeconomic status, how active each student's parents were in politics, whether the student was in any political clubs in high school, demographic attributes, numerous broad personality traits, and the highest level of education attained after the initial survey in 1960. Next, we provide a brief overview of how we measure each of these variables.

To measure cognitive ability, we developed composite measures for three abilities: mathematical, spatial, and verbal.⁸ We then computed an overall cognitive ability index ($\alpha = 0.85$) that was obtained by summing the three indices. Cognitive ability has been positively related to political engagement in previous studies (Denny and Doyle, 2008; Dawes et al., 2014; Deary, Batty, and Gale, 2008). We also include a number of measures of personality. The Project Talent study included the Project Talent Personality Inventory, which is based on 108 items from which 10 different scale composites were scored and recorded. Each item was answered on a five-point scale (ranging from "extremely well" to "not very well"). Item-level data (e.g., each of the 108 items) are unfortunately not available to researchers, but the overall scores for different traits (which were computed by the Project Talent staff) are available.⁹ We include measures of the following personality traits: sociability, impulsiveness, leadership, self-confidence, tidiness, culture, and maturity. These traits (or similar ones) have been included in numerous previous analyses on political participation (see, e.g., Denny and Doyle, 2008; Blais and Labbé-St-Vincent, 2011; Mondak, 2010; Fowler and Kam, 2006).

In addition to these measures, we include controls for parental socioeconomic status, how active each student's parents were in politics, and whether the student was in any political clubs in high school. To measure parental socioeconomic status (at the time the student was in high school), we use the composite measure of SES that Project Talent created based on answers to nine questions.¹⁰ We created a measure of parental political activism by averaging two questions ($\alpha = 0.63$) asking how active the student's mother and father were in political groups (ranging from "not a member of any these organizations" to "extremely active"). In addition, we measure student involvement in political organizations in high school using a question that asks how active each individual was in political clubs at school (ranging from "not a member of any these organizations" to "extremely active").

⁸The verbal ability composite ($\alpha = 0.82$) consists of three scales: reading comprehension, English composite, and vocabulary. The math ability composite ($\alpha = 0.85$) consists of four scales: introductory mathematics, arithmetic reasoning, advanced mathematics, and mathematics information. The spatial ability composite ($\alpha = 0.78$) consists of four scales: three-dimensional spatial visualization, two-dimensional spatial visualization, abstract reasoning, and mechanical reasoning.

⁹We are able to see that the questions are included in each scale in the Project Talent codebook. The data set simply does not include each of the 108 items.

¹⁰The questions are as follows: home value, family income, number of books in the house, number of appliances, access to media, availability of a private room for the child, father's job status, father's education, and mother's education; $\alpha = 0.69$.

These variables have been positively related to political engagement in numerous previous studies (see, e.g., Brady, Verba, and Schlozman, 1995; Jennings and Niemi, 1981; Plutzer, 2002; Verba, Schlozman, and Brady, 1995).

Finally, we include a number of demographic controls and a variable measuring the highest level of education attained after the initial survey in 1960. More specifically, we include a control for respondent sex (coded 1 for male, 0 for female) and race (coded 1 for white and 0 for minority). Since our dependent variables were only asked of certain subsamples (the turnout measure in the five-year follow-up was only asked of the 10th-grade class and the turnout measures in the 11-year follow-up were only asked of the 12th-grade class), it is not necessary to control for grade or respondent age. We do control for the highest level of education attained after the initial survey in 1960 to capture selection into or out of higher education (Kam and Palmer, 2008; Henderson and Chatfield, 2011).

Before proceeding to our statistical models, in Table 2 we provide a correlation matrix showing how all of the variables we examine in this study are correlated with one another. Generally speaking, the variables are related to each other in expected ways. In addition, there do not appear to be serious concerns with variables capturing the same concepts.

Results and Analysis

We begin our analysis by starting with the measure of turnout collected five years after high school ended. Model 1 in Table 3 indicates that student responsibility has a statistically significant and positive effect on voter turnout. This effect exists even after controlling for general personality measures, family background, socialization measures, demographics, and cognitive ability.¹¹ The predicted effect of this variable provides a sense of its substantive importance. After controlling for the other variables in the model, when student responsibility takes on its lowest value the predicted probability of voting is 0.48 and when it takes on its highest value the predicted probability increases to 0.56, a difference of 8 percentage points. Put differently, the most responsible students are 16.7 percent more likely to vote than their counterparts. Interestingly, this effect is comparable to the effect of parental political activism (also scaled from 0 to 1), a commonly used measure of family socialization influences, which yields an 11 percentage point increase (or a 21.6 percent boost) in the probability of turnout as it moves from its lowest to highest value. We should note that the interest in school measure is positively signed, as we expected, but the coefficient is not statistically significant at conventional levels ($p = 0.11$).

Fortunately, our data allow us to get an even longer-range look at the effects of high school behaviors and attributes on political participation. In Models 2 and 3, we use the two turnout measures collected during the 11-year follow-up as dependent variables. Turning first to general election turnout, we find that both school interest and student responsibility are statistically significant and positively related to voting in presidential elections. The substantive effects of interest and responsibility are shown in Figure 1. The left panel shows that the predicted probability of the most interested students voting is 0.90 compared to 0.82 for the least interested students, which is a difference of 8 percentage

¹¹The aggregate cognitive ability measure (verbal, spatial, and math scores) has a negative coefficient. When we reestimate the models and include the separate verbal, spatial, and math scores rather than the combined cognitive ability measure, we find that verbal ability has a positive effect ($p = 0.14$), but that spatial ability has a strong negative effect ($p = 0.000$), which seems to be driving the relationship when the aggregate measure is used. Math ability has little effect ($p = 0.79$) on turnout. Hillygus (2005) also finds interesting relationships between measures of cognitive ability. For instance, she finds that those who score better on the math section of the SAT perform fewer participatory acts than their counterparts.

TABLE 2
Correlation Matrix of Study Variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-------------------------------|-------|-------|-------|-------|-------|-------|------|-------|------|------|------|------|------|------|------|
| White (1) | 1.00 | | | | | | | | | | | | | | |
| Male (2) | 0.04 | 1.00 | | | | | | | | | | | | | |
| Cognitive ability (3) | 0.22 | 0.15 | 1.00 | | | | | | | | | | | | |
| Parent SES (4) | 0.17 | 0.02 | 0.44 | 1.00 | | | | | | | | | | | |
| School interest (5) | 0.01 | -0.27 | 0.21 | 0.13 | 1.00 | | | | | | | | | | |
| Responsible student (6) | 0.02 | -0.17 | 0.22 | 0.15 | 0.52 | 1.00 | | | | | | | | | |
| Parent political activism (7) | -0.05 | 0.07 | -0.12 | 0.09 | -0.06 | 0.03 | 1.00 | | | | | | | | |
| HS political clubs (8) | -0.11 | 0.06 | -0.20 | -0.07 | -0.09 | -0.01 | 0.23 | 1.00 | | | | | | | |
| Sociability (9) | 0.04 | -0.15 | 0.02 | 0.13 | 0.08 | 0.13 | 0.06 | -0.00 | 1.00 | | | | | | |
| Impulsiveness (10) | 0.01 | -0.01 | 0.04 | 0.08 | -0.13 | -0.03 | 0.07 | 0.06 | 0.22 | 1.00 | | | | | |
| Leadership (11) | -0.06 | -0.03 | 0.09 | 0.15 | 0.11 | 0.23 | 0.14 | 0.10 | 0.36 | 0.25 | 1.00 | | | | |
| Self-confidence (12) | 0.01 | -0.01 | 0.17 | 0.15 | 0.21 | 0.21 | 0.03 | -0.01 | 0.36 | 0.11 | 0.31 | 1.00 | | | |
| Tidiness (13) | 0.00 | -0.19 | 0.08 | 0.13 | 0.29 | 0.35 | 0.04 | -0.01 | 0.40 | 0.09 | 0.33 | 0.27 | 1.00 | | |
| Culture (14) | -0.01 | -0.26 | 0.11 | 0.18 | 0.26 | 0.34 | 0.08 | 0.03 | 0.44 | 0.18 | 0.41 | 0.29 | 0.59 | 1.00 | |
| Mature (15) | 0.02 | -0.07 | 0.23 | 0.16 | 0.34 | 0.46 | 0.06 | 0.02 | 0.39 | 0.18 | 0.48 | 0.39 | 0.61 | 0.58 | 1.00 |

TABLE 3

Impact of School Behavior (Measured in 1960) on Voter Turnout in Adulthood

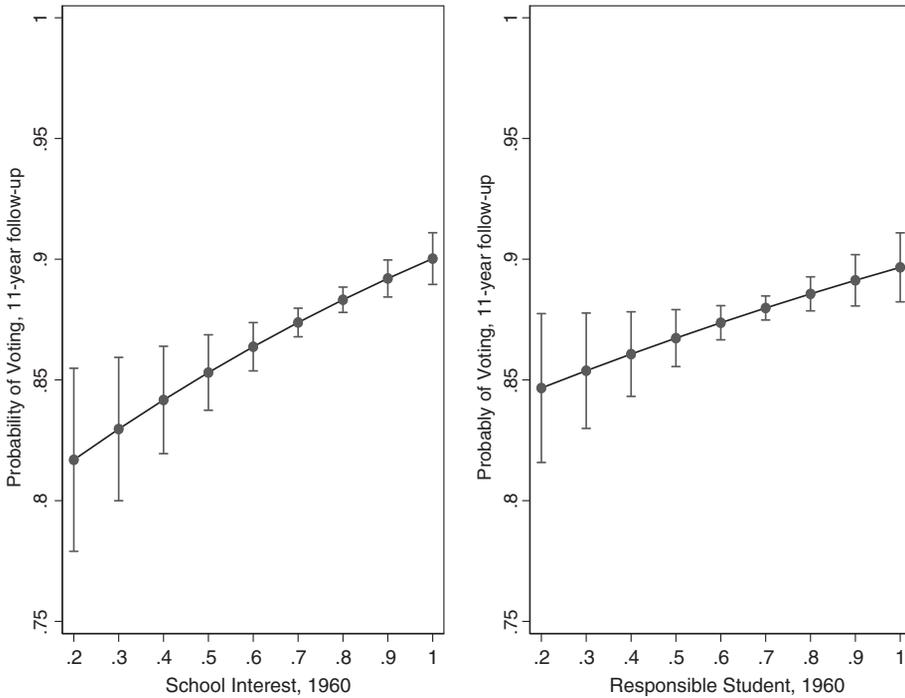
| | (1) Y5 Ever Vote <i>b/SE</i> | (2) Y11 Vote, General <i>b/SE</i> | (3) Y11 Vote, Primary <i>b/SE</i> |
|---------------------------------|------------------------------------|---|---|
| School interest | 0.204 (0.128) | 0.903*** (0.234) | 0.475* (0.191) |
| Responsible student | 0.406** (0.134) | 0.580* (0.248) | 0.600** (0.196) |
| Highest education | 0.153*** (0.024) | 0.021 (0.034) | -0.022 (0.025) |
| White | -0.023 (0.081) | 0.413*** (0.123) | 0.224* (0.110) |
| Male | 0.069* (0.031) | -0.127* (0.058) | 0.080 (0.045) |
| Cognitive ability | -0.027** (0.009) | 0.057*** (0.015) | -0.040*** (0.011) |
| Parental SES | 0.013*** (0.002) | 0.029*** (0.003) | 0.014*** (0.002) |
| Parent political activism | 0.435*** (0.065) | 0.678*** (0.139) | 0.705*** (0.104) |
| HS political clubs | -0.007 (0.021) | 0.021 (0.042) | 0.017 (0.032) |
| Sociability | 0.005 (0.006) | 0.021* (0.010) | 0.024** (0.008) |
| Impulsiveness | 0.010 (0.009) | -0.032* (0.016) | -0.003 (0.012) |
| Leadership | 0.016 (0.012) | 0.083*** (0.022) | 0.081*** (0.016) |
| Self-confidence | 0.014* (0.006) | -0.016 (0.011) | 0.003 (0.008) |
| Tidiness | -0.003 (0.006) | 0.003 (0.012) | -0.004 (0.009) |
| Culture | 0.008 (0.008) | 0.003 (0.014) | 0.017 (0.011) |
| Mature | 0.000 (0.004) | 0.005 (0.007) | 0.000 (0.005) |
| Constant | -2.069*** (0.199) | -2.703*** (0.349) | -1.901*** (0.280) |
| <i>N</i> | 22,347 | 16,145 | 13,687 |
| Pseudo- R^2 | 0.01 | 0.04 | 0.02 |
| Log-likelihood | -15,286.157 | -5,727.139 | -8,130.987 |
| LR χ^2 | 337.36 | 435.90 | 295.51 |
| Prob χ^2 | 0.0000 | 0.0000 | 0.0000 |
| Correctly classified | 55.69% | 87.93% | 70.73% |
| Proportional reduction in error | 6.14% | <1% | <1% |

NOTE: All models estimated with Stata (version 15.1); + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; two-tailed.

points (or a 9.8 percent difference). The right panel indicates that the predicted probability that the most responsible students vote is 0.90 and the predicted probability that the least responsible students vote is 0.85, a difference of 5 points. Put differently, the most responsible students are about 5.9 percent more likely to vote than the least responsible students.

FIGURE 1

Effect of Student Interest and Responsibility on Voter Turnout in Adulthood (11-Year Follow-Up)



In Model 3, which uses turnout in primary elections as the dependent variable, we see that both high school measures again have statistically significant effects on later political engagement and are positively related to turnout.¹² The substantive effects of the variables are similar to those reported above. After accounting for the other variables in the model, the predicted probability of the least responsible students voting is 0.64 and the predicted probability of the most responsible students voting is 0.74, a difference of 10 percentage points. The effect of being interested in school is a bit more modest. After accounting for the other variables in the model, the predicted probability of the least interested students voting is 0.65 and the predicted probability of the most interested students voting is 0.73, a difference of 8 percentage points.

Although the models in Table 3 include a wide range of controls and illustrate that the effects of school-related measures on voter turnout are not simply an artifact of individual or family characteristics, there may be concern that other correlated variables explain our results. For example, some schools might have different approaches (or have different cultures) regarding student learning that influence levels of student responsibility or interest. As a robustness check, we added fixed effects for high school. The results are displayed in Table 4 (control variables and school fixed effects omitted to save space).¹³ Even after controlling for the variables shown in Table 3 and all unobserved school characteristics, we

¹²Again, the overall cognitive ability measure has a negative coefficient, but it seems to be driven by the negative relationships between spatial and math ability and turnout.

¹³Full results are available on request. There are over 1,000 schools in the sample, so including all of the school dummy variables would yield an unmanageable table.

TABLE 4

Impact of School Behavior (Measured in 1960) on Voter Turnout in Adulthood (with School Fixed Effects)

| | (1) Y5 Ever Vote <i>b/SE</i> | (2) Y11 Vote, General <i>b/SE</i> | (3) Y11 Vote, Primary <i>b/SE</i> |
|----------------------|------------------------------------|---|---|
| School interest | 0.177 (0.138) | 1.035*** (0.255) | 0.670* (0.210) |
| Responsible student | 0.539** (0.145) | 0.616* (0.270) | 0.570** (0.216) |
| <i>N</i> | 22,103 | 14,288 | 13,053 |
| Pseudo- R^2 | 0.07 | 0.09 | 0.07 |
| School fixed effects | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes |

NOTE: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; two-tailed.

find that the patterns of statistical significance shown in Table 3 remain the same and the magnitude of the effects is similar. This increases our confidence that the effects we observe are not simply due to differences in schools.

One additional question that emerges regarding the robustness of our results is whether the school-related measures have the same effect on turnout for different groups of students. For example, do responsibility and interest have the same effects on turnout for male and female students or white and minority students? We investigated this possibility by running each of our models separately for male and female students and for white and minority students. In general, our findings are fairly consistent regardless of which demographic group we focus on. We summarize the results to save space but note that full model results are available on request. Turning first to our analyses that focus on respondent sex, when we run Model 1 in Table 3 separately by respondent sex, we find that the effects of interest in school and responsibility are positive for men ($p = 0.13$ and 0.14 , respectively, one-tailed tests) and women ($p = 0.084$ and $p < 0.05$, respectively, one-tailed tests). In Model 2 in Table 3, the effects of interest in school and responsibility are positive for men ($p < 0.05$ and $p < 0.05$, respectively, one-tailed) and women ($p < 0.05$ and $p = 0.131$, respectively, one-tailed). And in Model 3 in Table 3, the effects of interest in school and responsibility are positive for men ($p < 0.05$ and $p < 0.05$, respectively, one-tailed) and women ($p < 0.05$ and $p = 0.077$, respectively, one-tailed). When it comes to race, we also find a fair amount of consistency in the results across different groups. In Model 1 in Table 3, we find that the effects of interest in school and responsibility are positive for white students ($p < 0.05$ and $p < 0.05$, respectively, one-tailed tests) and that responsibility has a positive impact for nonwhite students ($p < 0.05$, one-tailed tests); interest is not statistically significant for this group. In Model 2 in Table 3, the effects of interest in school and responsibility are positive for whites ($p < 0.05$ and $p < 0.05$, respectively, one-tailed) and responsibility has a positive impact for nonwhite students ($p < 0.05$, one-tailed tests); interest is not statistically significant for this group. Finally, in Model 3 in Table 3, the effects of interest in school and responsibility are positive for white students ($p < 0.05$ and $p < 0.05$, respectively, one-tailed) and responsibility has a positive impact for nonwhite students ($p = 0.086$, one-tailed); again, interest is not statistically significant for this group. It is worth noting that the majority of respondents in the study are white, so the models for nonwhite respondents are based on much smaller sample sizes and thus the results should be interpreted with caution.

Conclusion and Future Research

In this article, we examined the role of school-related behaviors and attributes in shaping political engagement in adulthood. Using data from the Project Talent study, a national longitudinal study of a representative sample of high school students in the United States, we found that several variables related to one's high school experience had long-term effects on voter turnout. Students with high levels of responsibility and interest in school were more likely than their counterparts to vote in adulthood. We found that the effects of school-related measures collected in late adolescence persisted for over a decade. They also remained important predictors of turnout even after controlling for numerous personality traits, cognitive ability, resources, socialization experiences, and demographics.

Our findings have some interesting implications for those who are thinking about ways to increase political engagement. Although it may be difficult, it does seem possible to find ways to increase the sense of responsibility students feel toward school and to increase student interest in school. Indeed, some research in the realm of education has examined ways to shape these variables (Roache and Lewis, 2011; Lewis, 2001). Although the primary goal in developing ways to boost responsibility and interest is usually to improve student achievement in school, it is important to recognize that such initiatives may have downstream consequences for civic participation. If a student's interest and responsibility could be increased, it is possible that his or her odds of voting would increase. The idea that some dispositions, orientations, or behaviors are malleable and could yield increases in political engagement fits nicely with Holbein's (2017) work, which finds that a childhood program targeting psychosocial abilities increased the odds of voter turnout once the children reached adulthood.

Our results provide a number of ideas for future research. First, as we noted above, this study focused on just two measures related to high school. We encourage additional research on the role of other school-related behaviors and characteristics in shaping political engagement. Such research might focus on high school, but could even consider the role of elementary and middle school. We know very little about how experiences and behaviors in early childhood connect to political life. Second, it would be interesting to replicate the analyses in this article in different samples and to examine whether the effects of school-related measures persist for more than 11 years. Because we only had data that extended 11 years after high school, we were not able to examine a longer time frame. Recent research in psychology has found that some measures collected in childhood and adolescence have effects 30–50 years into adulthood (Moffitt et al., 2011; Spengler, Damian, and Roberts, 2018). Do similar long-term effects exist when it comes to political behaviors? Finally, it would be interesting to learn whether the effects of school-related variables are confined to voter turnout or whether they extend to a wide range of political acts. The Project Talent study only included measures of voter turnout so we were not able to replicate our analyses using other measures of political participation. We encourage future researchers to explore whether school-related behaviors and characteristics have similar effects on different types of political activities.

REFERENCES

- Andolina, Molly W., Krista Jenkins, Cliff Zukin, and Scott Keeter. 2003. "Habits from Home, Lessons from School: Influences on Youth Civic Engagement." *Political Science and Politics* 36(2):275–80.
- Berkowitz, Leonard, and Kenneth G. Lutterman. 1968. "The Traditional Socially Responsible Personality." *Public Opinion Quarterly* 32(2):169–85.

- Blais, André. 2000. *To Vote or Not to Vote? The Merits and Limits of Rational Choice Theory*. Pittsburgh, PA: University of Pittsburgh Press.
- Blais, A., and S. Labbé-St-Vincent. 2011. "Personality Traits, Political Attitudes and the Propensity to Vote." *European Journal of Political Research* 50(3):395–417.
- Block, Jack, and Jeanne H. Block. 2006. "Nursery School Personality and Political Orientation Two Decades Later." *Journal of Research in Personality* 40(5):734–49.
- Brady, Henry E., Sidney Verba, and Kay Lehman Schlozman. 1995. "Beyond SES: A Resource Model of Political Participation." *American Political Science Review* 89(2):271–94.
- Campbell, David. 2006. *Why We Vote: How Schools and Communities Shape Our Civic Life*. Princeton, NJ: Princeton University Press.
- Campbell, David E., Meira Levinson, and Frederick M. Hess. 2012. *Making Civics Count: Citizenship Education for a New Generation*. Cambridge, MA: Harvard Education Press.
- Condon, Meghan. 2015. "Voice Lessons: Rethinking the Relationship Between Education and Political Participation." *Political Behavior* 37:819–43.
- Daly, Michael, Liam Delaney, Mark Egan, and Roy F. Baumeister. 2015. "Childhood Self-Control and Unemployment Throughout the Life Span: Evidence from Two British Cohort Studies." *Psychological Science* 26(6):709–23.
- Dawes, Christopher, David Cesarini, James H. Fowler, Magnus Johannesson, Patrik K. E. Magnusson, and Sven Oskarsson. 2014. "The Relationship Between Genes, Psychological Traits, and Political Participation." *American Journal of Political Science* 58(4):888–903.
- Deary, I., D. Batty, and C. Gale. 2008. "Childhood Intelligence Predicts Voter Turnout, Voting Preferences, and Political Involvement in Adulthood: The 1970 British Cohort Study." *Intelligence* 36:548–55.
- Denny, K., and O. Doyle. 2008. "Political Interest, Cognitive Ability and Personality: Determinants of Voter Turnout in Britain." *British Journal of Political Science* 38:291–310.
- Dinesen, Peter Thisted, Christopher T. Dawes, Magnus Johannesson, Robert Klemmensen, Patrik Magnusson, Asbjørn Sonne Nørgaard, Inge Petersen, and Sven Oskarsson. 2016. "Estimating the Impact of Education on Political Participation: Evidence from Monozygotic Twins in the United States, Denmark and Sweden." *Political Behavior* 38(3):579–601.
- Fowler, James H., Laura A. Baker, and Christopher T. Dawes. 2008. "Genetic Variation in Political Behavior." *American Political Science Review* 102(2):233–48.
- Fowler, J., and C. Kam. 2006. "Patience as a Political Virtue: Delayed Gratification and Turnout." *Political Behavior* 28:113–28.
- Galston, William A. 2001. "Political Knowledge, Political Engagement, and Civic Education." *Annual Review of Political Science* 4:217–34.
- Gerber, A., G. Huber, D. Doherty, C. Dowling, C. Raso, and S. Ha. 2011. "Personality Traits and Participation in Political Processes." *Journal of Politics* 73(3):692–706.
- Gidengil, Elisabeth, Lasse Tarkiainen, Hanna Wass, and Pekka Martikainen. 2019. "Turnout and Education: Is Education Proxying for Pre-Adult Experiences Within the Family?" *Political Science Research and Methods* 7:349–65.
- Gough, Harrison G., Herbert McClosky, and Paul E. Meehl. 1952. "A Personality Scale for Social Responsibility." *Journal of Abnormal and Social Psychology* 47:73–80.
- Heckman, James J., Jora Stixrud, and Sergio Urzua. 2006. "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior." *Journal of Labor Economics* 24(3):411–82.
- Heckman, J., and E. Vytlacil. 2001. "Identifying the Role of Cognitive Ability in Explaining the Rising Returns to Education." *Review of Economics and Statistics* 83(1):1–12.
- Henderson, John, and Sara Chatfield. 2011. "Who Matches? Propensity Scores and Bias in the Causal Effects of Education on Participation." *Journal of Politics* 73(3):646–58.
- Hillygus, D. Sunshine. 2005. "The Missing Link: Exploring the Relationship Between Higher Education and Political Engagement." *Political Behavior* 27(1):25–47.

- Hillygus, D. Sunshine, John B. Holbein, and Steven Snell. 2016. "The Nitty Gritty: The Unexplored Role of Grit and Perseverance in Voter Turnout." Working Paper. Available at (<https://ssrn.com/abstract=2675326>).
- Holbein, John B. 2017. "Childhood Skill Development and Adult Political Participation." *American Political Science Review* 111(3):572–83.
- Jennings, M. Kent. 2002. "Generation Units and the Student Protest Movement in the United States: An Intra- and Intergenerational Analysis." *Political Psychology* 23(2):303–24.
- Jennings, M., and R. Niemi. 1981. *Generations and Politics*. Princeton, NJ: Princeton University Press.
- Jennings, M. Kent, Laura Stoker, and Jake Bowers. 2009. "Politics Across Generations: Family Transmission Reexamined." *Journal of Politics* 71(3):782–99.
- Kam, Cindy D., and Carl L. Palmer. 2008. "Reconsidering the Effects of Education on Political Participation." *Journal of Politics* 70(03):612–31.
- Kandler, Christian, Wiebke Bleidorn, Rainer Riemann, Alois Angleitner, and Frank M. Spinath. 2011. "The Genetic Links Between the Big Five Personality Traits and General Interest Domains." *Personality and Social Psychology Bulletin* 37(12):1633–43.
- Klemmensen, Robert, Peter K. Hatemi, Sara Binzer Hobolt, Inge Petersen, Axel Skytthe, and Asbjørn S. Nørgaard. 2012. "The Genetics of Political Participation, Civic Duty, and Political Efficacy Across Cultures: Denmark and the United States." *Journal of Theoretical Politics* 24(3):409–27.
- Lewis, Ramon. 2001. "Classroom Discipline and Student Responsibility: The Students' View." *Teaching and Teacher Education* 17:307–19.
- Moffitt, Terrie E., Louise Arseneault, Daniel Belsky, Nigel Dickson, Robert J. Hancox, HonaLee Harrington, Renate Houts, Richie Poulton, Brent W. Roberts, Stephen Ross, Malcolm R. Sears, W. Murray Thomson, and Avshalom Caspi. 2011. "A Gradient of Childhood Self-Control Predicts Health, Wealth, and Public Safety." *Proceedings of the National Academy of Sciences* 108(7):2693–98.
- Mondak, J. 2010. *Personality and the Foundations of Political Behavior*. Cambridge: Cambridge University Press.
- Mondak, J., M. Hibbing, D. Canache, M. Seligson, and M. Anderson. 2010. "Personality and Civic Engagement: An Integrative Framework for the Study of Trait Effects on Political Behavior." *American Political Science Review* 104(1):85–110.
- Niemi, R., and M. Jennings. 1991. "Issues and Inheritance in the Formation of Party Identification." *American Journal of Political Science* 35(4):970–88.
- Niemi, Richard, and Jane Junn. 2005. *Civic Education: What Makes Students Learn*. New Haven, CT: Yale University Press.
- Plutzer, E. 2002. "Becoming a Habitual Voter: Inertia, Resources, and Growth in Young Adulthood." *American Political Science Review* 96(1):41–56.
- Prescott, Carol, Deanna Lyter Achorn, Ashley Kaiser, Lindsey Mitchell, John McArdle, and Susan Lapham. 2012. "The Project Talent Twin and Sibling Study." *Twin Research and Human Genetics* 16(1):437–48.
- Roache, Joel, and Ramon Lewis. 2011. "Teachers' Views on the Impact of Classroom Management on Student Responsibility." *Australian Journal of Education* 55(2):132–46.
- Settle, Jaime E., Robert Bond, and Justin Levitt. 2011. "The Social Origins of Adult Political Behavior." *American Politics Research* 39(2):239–63.
- Spengler, M., M. Brunner, R. Damian, O. Lüdtke, R. Martin, and B. Roberts. 2015. "Student Characteristics and Behaviors at Age 12 Predict Occupational Success 40 Years Later Over and Above Childhood IQ and Parental Socioeconomic Status." *Developmental Psychology* 51(9):1329–40.
- Spengler, Marion, Rodica Ioana Damian, and Brent Roberts. 2018. "How You Behave in School Predicts Life Success Above and Beyond Family Background, Broad Traits, and Cognitive Ability." *Journal of Personality and Social Psychology* 114(4):620–36.
- Spengler, Marion, Brent W. Roberts, Oliver Lüdtke, Romain Martin, and Martin Brunner. 2016a. "The Kind of Student You Were in Elementary School Predicts Mortality." *Journal of Personality* 84(4):547–53.

- . 2016b. “Student Characteristics and Behaviours in Childhood Predict Self-Reported Health in Middle Adulthood.” *European Journal of Personality* 30(5):456–66.
- Stoll, Gundula, Sven Rieger, Oliver Lüdtke, Benjamin Nagengast, Ulrich Trautwein, and Brent Roberts. 2016. “Vocational Interests Assessed at the End of High School Predict Life Outcomes Assessed 10 Years Later Over and Above IQ and Big Five Personality Traits.” *Journal of Personality and Social Psychology* 113(1):167–84.
- Verba, S., K. Schlozman, and H. Brady. 1995. *Voice and Equality: Civic Volunteerism in American Politics*. Cambridge, MA: Harvard University Press.